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ABSTRACT

The Tennessee Higher Education Commission conducted a study of the salaries of teaching staff and faculty in response to Tennessee House Resolution 107 on sexual discrimination. This study is the first known statewide effort to determine academic salaries. A multiple regression analysis model was used. Among the general findings were that: (1) many institutions indicated that sex was not a statistically significant factor in salary determination; (2) there is considerable variation among campuses on procedures for salary review; and (3) women faculty members are concentrated in the lower paying disciplines (education, home economics, nursing, social sciences, humanities, and fine arts). General recommendations included in part, that each campus should develop systematic methods for annual review of salaries to determine if sex is a discriminatory factor, that women should be encouraged to seek doctoral degrees to enhance their chances of promotion and higher salaries, and that institutions should increase their efforts to attract women in fields where they are significantly underrepresented. Appended are the survey instrument, a number of institutional reports of litigation and efforts to promote sexual equality, and a summary of statistical analyses performed by the commission. (Author/PHR)

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TENNESSEE HIGHER EDUCATION COMMISSION

STAFF STUDY

RE: HOUSE RESOLUTION #107

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HIGHLIGHTS OF STUDY

The THEC staff has reviewed statistical analyses, information regarding efforts undertaken by each institution to ensure salary equity by sex and information concerning procedures for redress of grievances on each campus, and held discussions with institutional and governing board personnel. The THEC staff presents the following conclusions and recommendations:

General Findings:

1. For many institutions, statistical analyses including rank as a factor indicated that sex was not statistically significant as a factor in salary determination.
2. For some institutions, the statistical analyses excluding rank as a factor indicated that sex was statistically significant.
3. There is considerable variation among campuses with regard to practices and procedures for salary review.
4. An important difference between men and women faculty members is degree attainment; only one-third of the women faculty members in Tennessee have a doctorate compared to two-thirds of the men.
5. Women faculty members are concentrated in the lower-paying disciplines - Education and Home Economics, Nursing, Social Sciences, and Humanities and Fine Arts.

General Recommendations:

1. Each campus should develop systematic methods for annual review of salaries to determine if sex is a discriminatory factor. These methods should be approved by the governing boards, and a report of annual reviews of salaries by sex should be submitted to both the governing boards and the Higher Education Commission.
2. As a result of preliminary analyses and analyses reported in this study some campuses have conducted or are conducting additional studies of individual salaries. Three institutions made adjustments to some salaries during this year based on preliminary analyses. If individual cases of salary inequity are identified at any institution, that institution should make immediate salary adjustments from institutional sources.
3. Attainment of the doctorate degree is an important factor in salary and promotion, and more women should be encouraged to seek a terminal degree to enhance their position within higher education.

4. The THEC Master Plan contains recommendations that institutions increase their efforts to attract women in fields where they are significantly underrepresented.
5. It is important that Tennessee faculty be well informed of salary determination policies and procedures. Administrators on each campus should be certain that the criteria for evaluation of faculty members for salary determination and promotion, as well as appeal procedures, should be made available to each faculty member in written form.
6. The statistical analyses have identified areas which need additional review to determine if differences in salaries are the result of discriminatory practices. A detailed study of individual cases must be made taking into account appropriate factors before any finding of discrimination can be determined. Only after such determination can dollars required for adjustment be established. Within the past several years, equity adjustments have been made to women's salaries from institutional sources. It is the recommendation of the THEC staff that any funds required to eliminate salary inequities which cannot be explained by legitimate criteria be drawn from existing institutional resources rather than supplemental state appropriations.

Institutional findings, responses, conclusions and recommendations may be found in Section III, pages 17 - 23.

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THEC SALARY STUDY IN RESPONSE TO HOUSE RESOLUTION #107

INTRODUCTION

The House of Representatives of the 90th General Assembly directed the Tennessee Higher Education Commission (THEC) "to conduct a study of the salaries of teaching staff and faculty at the University of Tennessee System and the state universities and colleges system and to make recommendations to the General Assembly based on such study on the amount of money necessary for each institution to eliminate sex discrimination in the granting of salaries to the teaching staff and faculty".

The THEC was requested to make the recommendations to the Joint Finance Ways and Means Committee of the 91st General Assembly no later than February 1, 1979. This report is the response to that resolution. The House and Senate sponsors of the resolution agreed to allow a few days to provide additional time for institutional responses to the findings and for the THEC to meet to adopt a report.

Prior to undertaking any review of salaries in higher education it is important to understand how faculty salaries are determined. In Tennessee, as is the case in higher education institutions throughout the country, this process is different from salary procedures in many government agencies. Typically, higher education institutions do not have rigid salary schedules based primarily on rank or title, educational level and years experience. While institutions have the same responsibility as all other agencies to comply with state and federal laws and regulations prohibiting discrimination, faculty salaries reflect differences in performance and productivity, as well as educational level and experience. Further, salaries vary with the supply and demand conditions of various fields. Faculty members in fields in which the supply is short and the demand is great are more likely to receive higher salaries than those in fields with high supply and low demand. Because salaries are determined

at the institutional level, there can be substantial justifiable variations in faculty salaries among institutions and within the same institution.

Variations in faculty salaries should not be described as discrimination without careful analysis of the criteria used and the process followed in determining faculty salaries. Legitimate criteria for differences in salaries may include: highest degree held, date highest degree was awarded, years of experience, performance evaluations, research productivity, public service activities, discipline or field, administrative responsibility, and rank. The THEC analyses included in this report take into account as many of these factors as possible within the limitations imposed by time and data availability.

The remainder of this report is divided into three sections: Section I outlines the process used to conduct the study by the THEC staff, Section II outlines the findings, Section III summarizes THEC staff conclusions and recommendations to the THEC members.

SECTION I. PROCESS

Initially the THEC staff reviewed salary studies conducted in other parts of the country as well as analyses completed by some of the state's campuses and by the governing boards. The staff then contacted individuals with expertise in salary analyses. Based upon this research, the staff concluded that several kinds of information were needed to respond to House Resolution 107.

Types of Information Required

It was determined that information about each faculty member at each publicly supported higher education institution in Tennessee was required to perform analyses to identify any unexplained salary differentials which might be attributed to sex. Information regarding the efforts undertaken within the public institutions in Tennessee to ensure salary equity on each campus during the past several years was also collected. Information concerning procedures for redress of grievances related to salaries at each campus was gathered.

Basic Methods of Analysis Available

Staff research identified that two basic methods have been used to perform salary analyses for the purpose of identifying possible sex discrimination. The first is pairing which has been used in several institutional studies. This method involves selecting a male counterpart with similar salary determining characteristics for each female faculty member and determining whether her salary is substantially equal to that of the male counterpart. This method is time-consuming and requires information which cannot be readily collected on a comparable basis for a large number of people.

The second method that has been used is multiple regression analysis. Multiple regression is a statistical technique which allows the researcher to consider simultaneously the impact of a relatively large number of independent variables on a single dependent variable, in this case salary.

This study, in response to HR 107, is the first known statewide effort to be completed in the nation. Because of the large number of cases on a statewide basis, and the time available, the statistical method selected for use in this study was a multiple regression model. The method was also recommended by the three consultants employed by the Commission to assist in evaluation of the methodology and the findings of the study, as well as by other experts in the field.

Multiple regression approaches have been found to be useful tools for identifying situations which need further investigation or review. However, no statistical model can determine whether or not a specific individual is the victim of discrimination because of sex. Nor can statistical analyses alone prove the existence or non-existence of discrimination in the granting of salaries for an institution. Therefore, the interpretation of results of statistical analyses must be approached with great care.

Institutional Data and Narratives

In the fall of 1978 the THEC staff requested that the institutions submit narrative information on campus grievance procedures and campus efforts to ensure salary equity. In addition, a form was developed to secure the information necessary to conduct statistical analyses for faculty on each campus. The survey form attached as Appendix A, was used to collect information for each full-time teaching faculty member appearing on the October, 1978 payroll. For purposes of this study a "teaching faculty member" is defined as an individual who is assigned on at least a half-time basis to teaching. Clinical faculty for the two medical schools were excluded from the study. Twelve-month salaries were equated to academic year salaries. Information concerning research productivity, public service activity, and performance evaluation could not be collected in a quantifiable format with any degree of reliability in the time available. Current information in these areas cannot be readily translated into numeric values that would account for level and quality of activity and that would be comparable within and among institutions.

Because these factors are important determinants of salaries, inferences from the statistical analyses must be made with particular caution and regarded as only starting points for individual investigation.

Information for the statistical portion of this study was received in the THEC office in November. Once the information was verified, statistical analyses were performed by THEC staff on both an institution-wide basis and a discipline (academic field) basis. To provide better understanding of the importance of various factors in determining salaries, the analyses were conducted in a number of ways to take into account different factors and different combinations of factors. The details of these approaches are outlined in the findings section of this report. However, a comment on the importance of analysis by discipline should be made. The employment pool from which higher education faculty are drawn, is both a regional and national market. As noted previously, there are considerable differences in faculty salaries by discipline in Tennessee and throughout the country which reflect primarily the employment market differences for qualified persons in given fields on a national basis. For example, engineering faculty have significantly higher average salaries than education faculty. Because faculty salaries reflect the realities of the market-place, salary analysis should be made within a single discipline. For this reason, the THEC staff believes that the discipline analyses included in this report are more reliable than institution-wide analyses.

Definition of Statistical Significance for the Study

As indicated above, the primary purpose of these statistical analyses was to identify those situations which need further review and study. To determine which institutions or disciplines were in this category a test of statistical significance*

*In these analyses the F-test was used. An F-value is a standardized measure used to determine the statistical significance of variables in multiple regression equations.

was applied. The .05 level of significance was selected for this study. In non-mathematical terms, the .05 level of significance means there is a 95% probability that a conclusion is correct, given the explanatory factors included in the analysis. In addition, the statistic (R^2) must be considered in the evaluation of findings. This statistic indicates how much of the total variation in salaries is accounted for by the factors included in the analysis. For example, if in using a particular set of factors, sex is identified as statistically significant at the .05 level, but all the factors together produce an R^2 of .30, that means that only 30% of the variation in salaries has been accounted for by the factors included. In this example, valid interpretations of the findings for any particular factor included in the analysis cannot be made. However, as the R^2 value approaches 1.00, the reliability of the findings of significance for a particular factor included in the analysis improve.

The THEC staff believes that no conclusions can be made regarding statistical analyses with R^2 values below .50 and that conclusions based on R^2 values between .50 and .70 should be made with caution.

Institutional Review

Preliminary statistical analyses as well as the statistical analyses included in the report were submitted to all institutions for review and comments whether or not the test of significance indicated that there were unexplainable and statistically reliable differentials in salaries which might relate to sex. In some cases, THEC staff also met with appropriate institutional and Board staff to discuss the analyses and findings.

As a result of the institutional reviews, adjustments were made to the salaries of some women faculty members at three institutions. At East Tennessee State University adjustments totaling \$36,540 were made to the salaries of 54 women. At UT-Martin adjustments totaling \$6,010 were made to the salaries of 11 women. At Tennessee Technological University adjustments totaling \$3,200 were made to the salaries of 7 women. The findings included in this report were developed after those adjustments were made.

SECTION II: FINDINGS

Institutional Salary Review Techniques

All public higher education institutions report that they conduct regular reviews of all faculty salaries. However, statewide, there is considerable variation in the review procedures used and in the degree to which the review focuses upon the issue of sex in salary determination as a particular concern. The detailed descriptions of the salary review procedures submitted by each institution are attached in Appendix B. However, it is possible to summarize these responses in three broad categories.

Some institutions conduct sophisticated statistical analyses of faculty salaries on an annual basis in conjunction with the annual salary determination process. Salary differences by sex are one focus of these reviews, and in some cases salary adjustments have been made to women's salaries from institutional funds wherein unexplainable or inappropriate discrepancies have been discovered.

Other institutions designate a particular individual, such as a dean or an affirmative action officer, or a committee to review all proposed salaries to assure that any differences in salaries are the result of differences in performance or credentials rather than possible discrimination based upon non-legitimate factors.

A third group of institutions review all individual salaries as part of an annual salary determination process to ensure that all faculty members are fairly compensated for the services they are providing the institutions.

Any of these approaches can be an effective method of eliminating discrimination based upon sex or any other inappropriate factor. It is clear from the individual institutional responses that adjustments have been made to some women's salaries at some campuses using each of these approaches over the past several years.

Institutional Litigation and Investigations of Salary Discrimination by Sex

Reports from institutions and governing boards regarding the status of litigation and investigation activities concerning salary discrimination by sex currently underway or occurring within the past five years are included in Appendix B and are summarized in this section.

Austin Peay State University, Memphis State University and Tennessee Technological University are each involved in litigation with the U.S. Department of Labor under the Equal Pay Act. Pursuant to investigations by the department at the institutions, claims of differences in pay on the basis of sex for the 1974-75 year were resolved by adjustments by the institutions. The number of faculty involved at the institution were as follows: Austin Peay State University - 15, Memphis State University - 31, and Tennessee Technological University - 32. However, on the basis of an opinion of the State Attorney General, the institutions were not able to pay back pay claims for the prior two years and the department filed suit against all three institutions in 1975 to recover the claimed back pay. In the course of the trial of the case involving Memphis State University, which recently closed as to proof one and one-half years after it commenced, the Department expanded its claims beyond those initially presented in 1974.

East Tennessee had a U.S. Department of Labor investigation in 1975 resulting in no citation but a request that the salaries of three female faculty members be reviewed.

Middle Tennessee State has an action brought by a former female faculty member (1977) and is awaiting a hearing on whether it will be certified as a class action. An investigation by the U.S. Department of Labor (1977-1978) ended in June 1978 with a back pay settlement for thirty-five female faculty members at Middle Tennessee.

Tennessee State reported three salary discrimination cases. Two were withdrawn, while an out-of-court settlement was made in one case.

At Jackson State Community College a three-day investigation in 1973 by the U.S. Department of Labor resulted in no recommendations regarding salary adjustments for female faculty members. A 1973-74 court case involving the University of Tennessee at Knoxville resulted in a favorable judgment for the University. UT Knoxville also has a 1974 Office of Civil Rights complaint. The investigation is pending.

University of Tennessee Center for the Health Sciences currently has two cases pending. University of Tennessee at Chattanooga has three cases currently under investigation.

In addition, this study by the THEC has been required by the General Assembly and applies to all public universities and community colleges.

In reviewing this summary of litigation and investigation it is important to note that the mere existence of an investigation or a law suit does not indicate that sex discrimination exists at a particular campus. Such investigations are limited in scope and findings should not be generalized beyond cases included nor should such studies be applied to specific faculty cases without considering individual productivity and assignments.

Statistical Findings.

As indicated earlier in the report the statistical analyses were conducted a number of different ways to take into account different factors and combinations of factors. There were no major variations in the statistical significance of sex as a factor in the determination of salary using these different combinations of factors with one exception. Rank (Professor, Associate Professor, Assistant Professor, Instructor) is the major factor in salary determination for faculty in Tennessee as well as faculty throughout the country, because faculty in the senior ranks are paid more than faculty in the junior ranks. The granting of rank should reflect faculty productivity and performance and various studies completed throughout the country show that rank correlates highly with productivity measures such as scholarly activity, research, and publications.

However, if sex discrimination is a factor in the awarding of rank, then using rank as a factor to explain salary could mask some salary discrimination. On the other hand, because rank is the major factor in salary determination, exclusion of this important factor in the absence of productivity and performance factors limits valid interpretation of statistical results. The THEC staff has performed analyses including and excluding rank as a variable, and has reported both in the study.

Eleven separate multiple regression analyses for universities and four multiple regression analyses for community colleges were completed and reviewed by the THEC staff prior to preparation of this report. Appendix C is a list of each of these analyses and the variables included. As noted above, the findings related to the statistical significance of the sex factor did not vary substantially for a given institution using the different methods. Consequently, five methods have been selected by the THEC staff for more detailed elaboration within this report. Complete documentation of all eleven analyses has been maintained by the THEC staff and is available for review by any interested individual. (Certain other analyses were also followed in preliminary calculations but have been determined to be of significantly less value than those cited in Appendix C).

The first three analyses described below were selected by the THEC staff to provide a clear overview of the most important findings of the study with respect to salary differentials by sex. Where appropriate, tables follow each method and show the R^2 (percent of variation in salaries accounted for by factors included in the analysis), the F-value for the sex factor (the measure of the statistical significance of sex), and whether or not the F-value is statistically significant at the .05 level.

The last two analyses are applications of the Higher Education Salary Evaluation Kit developed by the American Association of College and University Professors (AAUP Model). These have been included because of expressed legislative interest in this

particular model. However, the THEC staff has less confidence in the results of this model than the other three analyses for a number of reasons. While the AAUP model is a multiple regression model, it uses only men's salaries in determining the importance of factors included. This results generally in lower R^2 values. Secondly, the model requires a minimum of fifteen men in a given discipline in order to run. This means that in many instances the analysis cannot be performed for all faculty. This results in the exclusion of a relatively large number of men and women from the findings. Finally, the model, because it is based upon men's salaries only, does not test for statistical significance of sex as a factor in salary determination.

Despite these limitations, the AAUP model results do not contradict the findings of the other multiple regression analyses included in this report. Outlined below are the findings for each of the five analyses.

Analysis I: Institution-wide Multiple Regression Analysis with Rank

In this approach, the following factors were included to determine their impact on salary: Age, Total Years of Experience, Degree (Bachelor's or Below, Master's, or Doctoral), Year of Terminal Degree, Discipline, Sex and Rank. Nine disciplines were used for universities: Basic and Applied Sciences, Business Administration, Health Professions (where applicable), Humanities and Fine Arts, Social Sciences, Education and Home Economics, Architecture and Engineering (where applicable), Law (where applicable), and Technologies (where applicable). For community colleges, only two disciplines were used: Transfer Programs and Technologies. The statistical outcomes of that analysis are contained in Table 1.

As can be seen from Table 1, this analysis shows that there is no statistical significance for any but one institution (Columbia State) for the sex factor when all these factors are included. A finding of no statistical significance of the

sex factor does not preclude the possibility of individual cases of discrimination, but it does strongly suggest that sex is not a significant factor in determination of salaries throughout the institution. In the same sense, for institutions with statistical significance, the analysis suggests that further investigation should be made to determine the impact of the sex factor in the determination of salaries.

TABLE 1

INSTITUTION-WIDE ANALYSIS WITH RANK, AGE, EXPERIENCE, DISCIPLINE, DEGREE, YEAR OF TERMINAL DEGREE

	^{account} <u>R²</u>	<u>F (Sex)</u>	<u>Statistically Significant</u>
ARSU	.89	0.11	No
ETSU	.87	3.62	No
ETSU College of Medicine	.95	1.88	No
MSU	.83	3.10	No
MTSU	.88	1.77	No
TSU	.78	0.03	No
TTU	.78	1.53	No
Chattanooga	.52	2.34	No
Cleveland	.70	0.90	No
Columbia	<u>.86</u>	<u>12.33</u>	Yes
Dyersburg	.75	0.54	No
Jackson	.85	0.32	No
Motlow	.70	0.06	No
Roane	.73	1.81	No
Shelby	.80	3.41	No
Volunteer	.85	0.53	No
Walters	.84	1.82	No
UTC	.78	0.27	No
UTK	.78	1.50	No
UTM	.74	3.67	No
UTN	.89	N/A	No
UTCHS	.76	1.93	No
UTSI	.82	0.57	No
UT Vet. School	.89	0.33	No

- NOTES: 1. R² indicates how much of the variation in salaries is accounted for by the factors.
2. F is a test of significance for the sex factor. In this analysis the F-value must exceed 3.9 to indicate statistical significance at the .05 level.

Analysis II: Institutional Multiple Regression Analysis with Rank by Discipline

Additional analyses were performed for universities on a discipline basis. The factors included in Analysis I were also used in this analysis. It was not possible to complete this analysis for the community colleges, the UT Space Institute, the UT Agriculture Institute or the ETSU College of Medicine because of the small number of faculty members.

It is acknowledged that the discipline groupings used could have some impact on the results. The groupings were used to provide comparable information for all institutions. Since there is variability in institutional organization of departments, some distortions of results occur; however, the analysis suggests areas in need of review.

While this analysis was completed for each applicable discipline at each university, the only finding of significance using this method was the area of Education and Home Economics at UT-Knoxville. ($R^2=.83$, $F=5.71$). The discipline includes departments from several colleges. Additional analyses on a college basis for this discipline at UT-K showed no statistical significance.

Analysis III: Institutional Multiple Regression Analysis Without Rank by Discipline

The third analyses is presented by discipline for the universities. The factors for Analysis II except rank were used in this analysis. For community colleges, UT Space Institute, UT Agriculture Institute, and ETSU College of Medicine the analysis could not be made on discipline basis because of faculty size. Table 2 shows areas of statistical significance. In most cases the exclusion of rank results in a dramatic decline in the R^2 statistic which reflects the variation in salaries accounted for by the factors used. In these cases, valid interpretation is particularly difficult. As noted earlier, the THEC staff believes that no conclusions can be made regarding statistical analyses with R^2 values below .50 and that conclusions regarding R^2 values between .50 and .70 should be made with caution.

TABLE 2

ANALYSIS WITH AGE, EXPERIENCE, DEGREE,
YEAR OF TERMINAL DEGREE BY DISCIPLINE,
(ONLY DISCIPLINES WITH STATISTICAL SIGNIFICANCE ARE SHOWN)

	<u>R²</u>	<u>F (Sex)</u>
ETSU - Business	.65	5.89
Humanities and Fine Arts	.55	6.06
MSU - Basic and Applied Science	.25	6.02
Business	.40	4.55
Humanities & Fine Arts	.50	19.12
Social Science	.50	6.49
Education & Home Economics	.40	26.94
MTSU - Business	.85	4.34
Humanities & Fine Arts	.80	5.63
TSU - Basic & Applied Sciences	.62	8.51
UTK - Business	.38	8.82
Health Professions	.57	6.76
Humanities & Fine Arts	.58	30.16
Education & Home Economics	.58	34.28
Architecture & Engineering	.32	4.79
Columbia - (All Disciplines)	.73	18.93
Volunteer - (All Disciplines)	.78	7.70

- NOTES: 1. R² indicates how much of the variation in salaries is accounted for by the factors. THEC staff believes that no valid conclusions can be made for R² values below .50 and that interpretations of findings with R² values between .50 and .70 should be made with caution.
2. F is a test of significance for the sex factor. In this analysis the F-value must exceed 3.9 to indicate statistical significance at the .05 value.

Analysis IV: AAUP Model with Rank

The AAUP model provides a method for identifying women faculty whose salaries appear to be low in comparison to the salaries of male faculty members. The model does not test for statistical significance of sex as a factor in salary determination. This model is designed for institutional use; the recommended procedure is followed on a departmental basis with at least fifteen male faculty members. The model itself predicts the salaries of women faculty members using the characteristics of age, degree, rank, year of degree, experience, and discipline of male faculty members. The publication of the AAUP describing this method recommends that rank not be used. Analysis IV utilized the AAUP model, except that rank was included as a predictor. In some cases, it was not possible to include all faculty members. For example, some institutions have engineering programs with no female faculty, and it would distort the equation to combine the engineering salaries with another, lower paid discipline. In other cases, there were insufficient numbers of men within a discipline, such as nursing, resulting in the exclusion of both men and women from the analysis. At community colleges, UT Space Institute, ETSU College of Medicine, UT Agriculture Institute, UTN, and UTCHS a large proportion of faculty cannot be included using this method. Table 3 shows the number of men and women faculty members with salaries above and below the predicted level in this analysis.

TABLE 3
AAUP WITH RANK, AGE, EXPERIENCE, DEGREE
YEAR OF TERMINAL DEGREE

	<u>Women Above Predicted</u>	<u>Women Below Predicted</u>	<u>Men Above Predicted</u>	<u>Men Below Predicted</u>
APSU	19	14	55	67
ETSU	30	48	111	130
MSU	56	70	178	208
MTSU	43	35	125	136
TSU	46	52	71	62
TTU	27	23	89	112
UTC	26	21	78	99
UTK	68	104	385	443
UTM	16	24	58	74

Analysis V: AAUP Model without Rank

Analysis V is the same approach as Analysis IV except rank is excluded as a predictor. Table 4 shows the number of men and women faculty members with salaries above and below the predicted level in this analysis.

TABLE 4
AAUP WITHOUT RANK, AGE, EXPERIENCE, DEGREE
YEAR OF TERMINAL DEGREE

	<u>Women Above Predicted</u>	<u>Women Below Predicted</u>	<u>Men Above Predicted</u>	<u>Men Below Predicted</u>
APSU	13	20	66	56
ETSU	22	56	115	126
MSU	36	90	187	199
MTSU	41	37	124	137
TSU	42	56	65	68
TTU	16	34	94	107
UTC	20	27	85	92
UTK	41	131	417	411
UTM	12	28	64	68

SECTION III: CONCLUSIONS AND RECOMMENDATIONS

The THEC staff has reviewed statistical analyses, information regarding efforts undertaken by each institution to ensure salary equity by sex and information concerning procedures for redress of grievances on each campus, and held discussions with institutional and governing board personnel. The THEC staff presents the following conclusions and recommendations:

General Findings:

1. For many institutions, statistical analyses including rank as a factor indicated that sex was not statistically significant as a factor in salary determination.
2. For some institutions, the statistical analyses excluding rank as a factor indicated that sex was statistically significant.
3. There is considerable variation among campuses with regard to practices and procedures for salary review.
4. An important difference between men and women faculty members is degree attainment; only one-third of the women faculty members in Tennessee have a doctorate compared to two-thirds of the men.
5. Women faculty members are concentrated in the lower-paying disciplines - Education and Home Economics, Nursing, Social Sciences, and Humanities and Fine Arts.

General Recommendations:

1. Each campus should develop systematic methods for annual review of salaries to determine if sex is a discriminatory factor. These methods should be approved by the governing boards, and a report of annual reviews of salaries by sex should be submitted to both the governing boards and the Higher Education Commission.
2. As a result of preliminary analyses and analyses reported in this study some campuses have conducted or are conducting additional studies of individual salaries. Three institutions made adjustments to some salaries during this year based on preliminary analyses. If individual cases of salary inequity are identified at any institution, that institution should make immediate salary adjustments from institutional sources.
3. Attainment of the doctorate degree is an important factor in salary and promotion, and more women should be encouraged to seek a terminal degree to enhance their position within higher education.

4. The THEC Master Plan contains recommendations that institutions increase their efforts to attract women in fields where they are significantly underrepresented.
5. It is important that Tennessee faculty be well informed of salary determination policies and procedures. Administrators on each campus should be certain that the criteria for evaluation of faculty members for salary determination and promotion, as well as appeal procedures, be made available to each faculty member in written form.

INSTITUTIONAL FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The following institutions have been identified for comments because there were findings of statistical significance for the sex factor in one or more of the first three analyses outlined above.

1. Columbia State Finding: The institution-wide multiple regression analysis indicates that there are unexplained differences in salaries by sex. The THEC staff has had discussions with Columbia State and the State Board of Regents' staff regarding additional salary reviews for individual faculty members.

Institutional Response: "The staffs of Columbia State and the State Board of Regents have carefully analyzed faculty salaries at the college over the last several months in light of the results of the Tennessee Higher Education Commission regression model. As a result of this analysis, they are convinced that no salary discrimination exists within the institution based upon sex.

This conclusion if predicated upon, at least, the factors enumerated below. Interaction between and among these factors presents a statistical aberration which cannot be accommodated by the model.

- a. The small number of faculty members at the institution.
- b. The peculiar, and unique, combination of disciplines found at the institution especially in career fields.
- c. It appears that the variable degree year accounts for a large portion of the variance at Columbia State (or is one of the major factors which results in a significant F statistic). However, at Columbia State the variable creates an undue effect in that a number of faculty, particularly women, have held degrees for some time but have not been involved in the education profession.
- d. There are several faculty with less than a baccalaureate (but with other related experience in their field) who are treated as though they did possess the degree.

While it appears to be impossible to isolate the single cause of the significant F statistic, the cumulative effect of the factors noted above brings disastrous results when based upon the small number of faculty in this institution. Columbia State has made continuous efforts to ensure compliance with affirmative action and anti-discrimination legislation and has endeavored to comply with both the letter and the spirit of the law and we believe this has been accomplished."

State Board of Regents Staff Comments with Respect to findings for Columbia State Community College:

The statistical results on Columbia State are unreliable. After considerable analysis of the institution's salaries, both institutional personnel and SBR staff concluded that the computed statistics were distorted by the salaries of two highly specialized faculty members, a veterinarian and an accountant with a CPA.

These two persons are paid salaries considerably above other faculty members, but were accorded the rank of assistant professor because of limited prior teaching experience.

When these two faculty members are either excluded from the analysis, or coded as full professors, the statistical significance of the sex variable disappears. The number of faculty members is so small at Columbia State and so diverse in training, experience, and assignment that application of the statistical model yield totally unstable results.

The SBR staff is completely satisfied that the distribution of salaries is non-discriminatory.

THEC Staff Conclusion: The THEC staff concurs with the institutional and Board's staff conclusion that apparent differences in salaries by sex can be attributed to factors not included in the statistical analyses.

2. UT Knoxville Findings:

- a. The multiple regression analysis including rank by discipline indicates that there are unexplained differences in salary by sex in the area of Education and Home Economics. The institution and the THEC staff have conducted additional analyses of the discipline on a college basis. These analyses show no statistical significance for the sex factor.
- b. When rank is not included as a factor, unexplained differences occur in a number of areas; however, the R^2 factors are low in some areas. These differences do not appear when rank is included as a factor.
- c. UT Knoxville has performed annual statistical studies of all faculty salaries with special attention to the issue of sex equity since 1971. The results of these studies are available to all faculty members, and adjustments have been made to more than 100 women within the past five years.

Institutional Response:

1. "The grouping into the discipline area of education, home economics, and library and information sciences, based on HEGIS taxonomies, results in the aggregation of units, which are too dissimilar in level of instruction and discipline to produce valid findings. UTK and THEC have performed additional regression analyses for each UTK college or school and concur that sex is not a significant salary determinant in any college or school.

UTK has also analyzed the results of the analysis by discipline area and will include an examination of the salaries of the five women which are substantially below projected salaries for the discipline area in the regular annual salary equalization process.

2. UTK is presently engaged in conducting studies of promotion and tenure patterns to determine whether rates of promotion and tenure differ for males and females. With the assistance of UTK Commission for Women, analyses will be conducted for any area in which significant differences in rates are found. The purpose of the analyses will be to ascertain whether there has been discrimination against females.
3. All the significant studies of determinants of faculty salaries indicate that rank is the single most important explanatory variable. Because rank is such an important variable, any analysis which excludes this factor cannot produce reliable and valid conclusions."

THEC Staff Conclusion: The THEC staff concurs with UT-Knoxville's conclusion that the apparent differences in salaries by sex in the area of Education and Home Economics are the result of combining faculty members from more than one college.

THEC Staff Recommendation: In view of the findings of the multiple regression analysis by discipline when rank is excluded, it is recommended that the institution focus particular attention in the areas of Health Professions, Education and Home Economics and Humanities and Fine Arts in the course of the promotion and tenure study the institution currently has underway.

3. East Tennessee Finding: The multiple regression analysis by discipline excluding rank shows unexplained differences in salaries by sex in the areas of Business Administration and Humanities and Fine Arts. These differences do not occur when rank is included as a factor.

Institutional Response: "East Tennessee State University has serious reservations regarding the use of any statistical model which does not include rank as a variable. Every important study of faculty salaries concludes that rank is one of the most important explanatory variables. For rank to be excluded, it must be shown that it is bestowed on a discriminatory basis. There is no discrimination pattern in the rank structure of this institution when possession of the terminal degree, years of collegiate experience, and years that the terminal degree has been held are considered. Furthermore, promotions are awarded on the basis of clear and objective criteria which preclude pervasive discrimination on any basis.

In addition, inclusion of business education or office administration in the discipline category "Business and Management" is inappropriate in that salaries in business education are well below the market salaries in the business administration field. If the persons in business education included in the THEC report were transferred to education, the statistical significance of the sex variable is eliminated."

THEC Staff Recommendation: It is recommended that the institution review its promotion practices to ensure that sex is not a factor in determination of rank. Particular attention should be focused in the areas of Business Administration and Humanities and Fine Arts.

4. Memphis State Finding: The multiple regression analyses by discipline excluding rank identifies some disciplines wherein unexplained differences by sex are statistically significant. These differences do not appear when rank is included as a factor. (The R^2 factors are .50 or below and no conclusions can be drawn concerning the sex factor.)

Institutional Response: "The statistical analysis for Memphis State University points to "problems" only when rank is omitted from the analysis. Every significant study of the determinants of faculty salaries indicates that rank is the most important of all explanatory variables. The rank structure and the promotions of MSU have been carefully studied and there is no evidence of pervasive discrimination. Therefore, rank must be included if the analysis is to be valid."

Because the doctorate is one of the most significant requirements of rank, and the model as applied in the THEC study gives "equal weight" to each level of degree, statistical analyses were run for some of the same discipline categories employed by THEC and substituting possession of the doctorate for the degree variables. The statistical significance of the sex variable was eliminated, in spite of the continued exclusion of rank."

THEC Staff Recommendation: It is recommended that the institution review its promotion practices to ensure that sex is not a factor in determination of rank.

5. Middle Tennessee Findings:

- a. As a result of the U.S. Department of Labor investigation of salaries of sex, a significant study has been undertaken within the past year.
- b. The multiple regression analyses by discipline excluding ranks identify two disciplines, Business and Humanities and Fine Arts, wherein unexplained differences by sex are statistically significant. These differences do not appear when rank is included as a factor.

Institutional Response: "Of the five statistical models applied to Middle Tennessee State University salary data, only one, the multiple regression analysis without rank by discipline, yields any statistically significant coefficients for sex. Of all the explanatory variables employed in the study of faculty salaries, rank is considered to be the most important by authorities in the field. Analysis of the rank structure of MTSU and the promotions of the last few years supports the conclusion that there is no

discrimination by sex when such factors as possession of the terminal degree, years of collegiate experience, and years at the present rank are taken into account. While the THEC report states that it would be desirable to have evaluation and productivity information to incorporate into the analysis, failure to use rank as one of the explanatory variables in the analysis eliminates the only explanatory variable which is performance and productivity related.

(In our judgment, unless there is positive evidence that rank is bestowed on a discriminatory basis, it must be included if the analysis is to be meaningful.)"

THEC Staff Recommendation: It is recommended that the institution review its promotion practices to ensure that sex is not a factor in determination of rank. Particular attention should be focused in the areas of Business and Humanities and Fine Arts.

6. Tennessee State Finding: The multiple regression analyses by discipline excluding rank, identifies one discipline, Basic and Applied Sciences, wherein unexplained differences by sex are statistically significant. This difference does not appear when rank is included as a factor.

Institutional Response: "For several years now Tennessee State University has been monitoring both salaries and promotions to ensure that no discrimination on the basis of sex, or of other unlawful factors, exists. A study of the rank structure of the University and of the promotions in recent years reveals no pattern of discrimination. Thus, it is believed that rank must be included in any statistical model because it is universally regarded as the most significant of the explanatory variables and there is no evidence that there is discrimination in the award of rank at this institution.

The existence of a "statistically significant" coefficient for sex in the Basic and Applied Sciences is primarily the result of a concentration of women in the lower ranks who do not have the doctorate and are ineligible for promotion in terms of both institutional and SBR policies. All promotions are made on the basis of clear and objective criteria which preclude discrimination on any basis.

THEC Staff Recommendation: It is recommended that the institution review its promotion practices, to ensure that sex is not a factor in determination of rank, particularly in the area of Basic and Applied Sciences.

7. Volunteer State Finding: The institution-wide multiple regression analysis excluding rank identifies statistical significance for the rank factor. This difference does not appear when rank is included as a factor.

Institutional Response: "We have reviewed our promotion policy which meets the requirements of SBR Policy No. 5:02:02:00 (pp 9-17) "Guidelines for Faculty Promotion Recommendations at Universities and Community Colleges" which states: "In maintaining this policy, promotions are made objectively, equitably, impartially, and as a recognition of merit in line with the policy guidelines." Our policy includes minimum criteria for promotion in rank, an extensive evaluation process leading to a recommendation and an appeals procedure. We take great care to assure non-discrimination throughout this process. It is also important to point out that VSCC has no female faculty members that meet the minimum requirements for full professor rank and thus the salaries may appear

to be inequitable as a result. In addition, THEC data shows that the female faculty salaries at VSCC rank number one among community colleges in Tennessee, the male faculty salaries rank number two among community colleges in Tennessee, and the average female salaries at VSCC are higher at every rank except the Professor rank for which no female faculty are presently qualified to hold."

THEC Staff Recommendation: It is recommended that the institution review its promotion practices to ensure that sex is not a factor in determination of rank.

THEC STAFF RECOMMENDATION ON AMOUNT OF
MONEY NECESSARY FOR EACH INSTITUTION TO ELIMINATE SEX DISCRIMINATION

The statistical analyses have identified areas which need additional review to determine if differences in salaries are the result of discriminatory practices. A detailed study of individual cases must be made taking into account appropriate factors before any finding of discrimination can be determined. Only after such determination can dollars required for adjustment be established. Within the past several years, equity adjustments have been made to women's salaries from institutional sources. It is the recommendation of the THEC staff that any funds required to eliminate salary inequities which cannot be explained by legitimate criteria be drawn from existing institutional resources rather than supplemental state appropriations.

TENNESSEE HIGHER EDUCATION COMMISSION

Faculty Survey

Fall 1978

One 80-character record should be submitted for each faculty included in the survey. If a faculty member is assigned to more than one budget account, or discipline, then the record submitted should reflect the primary account or discipline. Data should be right-justified in each field and zero-filled. The information should be submitted on an 800 bpi, non-labeled tape, unblocked or 50 records per block.

1. INSTITUTIONAL CODE:	2. SOCIAL SECURITY NUMBER: - -	(3-11)
(1-2)	3. DEPARTMENT NAME:	(12-22)
4. BUDGET ACCOUNT CODE: (23-33)		
5. MONTHS APPOINTMENT AT INSTITUTION ROUNDED TO NEAREST MONTH: (i.e. 11, 12, 10, 09)		 (34-35)
6. TOTAL SALARY FOR APPOINTMENT ROUNDED TO NEAREST DOLLAR: From all sources restricted and unrestricted Note: Only salary associated with full-time positions should be reported, i.e., payment for overloads should not be reported.		 (36-40)
7. YEAR OF BIRTH: Last two digits of employee's year of birth.		 (41-42)
8. SEX:		Male ☐ 1 Female ☐ 2 (43)
9. RACE		Asian or Pacific Islander ☐ 1 American Indian or Alaska Native ☐ 2 Black, Not of Hispanic Origin ☐ 3 Hispanic ☐ 4 White, Not of Hispanic Origin ☐ 5 Unclassified ☐ 6 (44)
10. HIGHEST DEGREE EARNED:		Associate ☐ 1 Bachelor's ☐ 2 Master's ☐ 3 Specialist in Education ☐ 4 Master's + 45 ☐ 5 Master's + 90 ☐ 6 Professional (Law Only) ☐ 7 Doctoral (Ph.D., Ed. D., D.B.A.) ☐ 8 M.D., D.D.S., D.V.M. ☐ 9 No Degree ☐ 0 (45)
11. YEAR OF AWARD OF HIGHEST DEGREE: (Use last two digits)		 (46-47)

12. YEARS OF FULL-TIME EMPLOYMENT ROUNDED TO WHOLE YEARS:

Higher Education, This Institution

(48-49)

Higher Education, Other Institutions

(50-51)

Equated Professional Experience specifically related to person's current assignment and used by institution in establishing rank and salary level other than at Higher Education Institutions.

(52-53)

13. Administrative Title

Departmental Chairman
Division Head
Dean or Assistant Dean
Other

1
 2
 3
 4 (54)

14. TENURE:

Yes
No
Non-Tenure Track

1
 2
 3

(55)

15. RANK:

Professor
Associate Professor
Assistant Professor
Instructor
Lecturer

1
 2
 3
 4
 5

(56)

16. YEARS IN CURRENT RANK:
(Round to Nearest Year)

(57-58)

17. PRIMARY ACADEMIC FIELD TO WHICH FACULTY MEMBER IS ASSIGNED:

(HEGIS CODES)

Agriculture, Forestry, Natural Resources
Architecture, Environmental Design
Area Studies (Asian, etc.)
Biological Sciences
Business & Management (includes Bus. Econ.)
Communications (Incl. Journalism, TV, Radio)
Computer, Information Sciences
Education, P.E., Health Education
Engineering, Engr. Tech., Indus. Tech.
Fine & Applied Arts
Foreign Languages
Health Professions (Incl. 4-year Nursing)
Home Economics
Law (Professional Only)
Letters, English, Lit., Philosophy
Library Science
Mathematics

Physical Sciences
Psychology
Public Affairs & Serv. (Pub. Admin., Soc. Work, Law Enforcement)
Social Sciences (Pol. Sci., Hist., Soc., Geog., Anthro.)
Interdisciplinary
*Business and Commerce Technology
*Data Processing Technology
*Health Services & Paramedical Technology
*Mech. and Engineering Technology
*Natural Sciences Technology
*Public Service Technology

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(59-60)

*Technology Program Leading to Associate Degree or Certificate

INSTITUTIONAL RESPONSES CONCERNING LITIGATION,
INSTITUTIONAL EFFORTS TO ELIMINATE SEX DISCRIMINATION, AND APPEAL PROCEDURES

The THEC staff requested that each institution respond to the following questions covering the last five years.

1. Has your institution been involved in litigation for which one or more court decisions have been rendered or out-of-court settlements have been rendered regarding alleged discrimination by sex in awarding salaries? If yes, please provide comments concerning outcome and current status.
2. Is your institution currently involved in litigation, other than cases included above, regarding alleged discrimination by sex in awarding salaries? If yes, please identify the number of such cases.
3. Has your institution been involved in investigation by external agencies such as Department of Labor, etc., regarding alleged discrimination by sex in awarding salaries for which settlements have been rendered? If yes, please provide comments.
4. Is your institution currently under investigation, other than cases included above? If yes, please identify the number of such cases.
5. Does your institution conduct reviews of salaries by sex to determine if discrimination exists? If so, please comment on nature and frequency of review, findings, and any actions taken.

In addition each institution was requested to provide information concerning appeal procedures for person alleging sex discrimination in salary or promotion. This information is available for review in the THEC offices.

The verbatim responses for each institution follow. The responses are numbered to coincide with the question numbers above.

AUSTIN PEAY STATE UNIVERSITY

1. Our institution has not been involved in litigation for which a court decision, or an out-of-court settlement, has been rendered regarding alleged discrimination by sex in awarding salaries.
2. Our institution currently has pending litigation involving the Department of Labor and the Equal Pay Act. This case has been pending since 1975.
3. Our institution has not been involved in investigations by external agencies regarding alleged discrimination by sex in awarding salaries for which settlements have been rendered.
4. Our institution is currently under investigation by the EEOC in connection with three charges of discrimination, two involving race and one involving sex. None of these involves salaries.
5. Our institution conducts reviews of salaries by sex to determine if discrimination exists. The first such review was undertaken in 1974 and resulted in the 1974-75 salaries of ten female faculty members being raised. In the Spring of 1976, the President appointed a committee to make recommendations on equity adjustments in faculty women's salaries for the 1976-77 academic year. Because of budget constraints for that year, the recommendations of the committee could not be implemented in full, but seven women faculty members received increments beyond the across-the-board raises which all faculty received. As part of its Affirmative Action Plan, the institution prepares for the State Board of Regents an analysis of faculty salaries by race and sex. This analysis was undertaken in Spring, 1976; Fall, 1976; Spring, 1977; Fall, 1978; and will be prepared annually in the future. In Fall, 1977, a salary schedule for faculty was implemented. In assigning female faculty to appropriate salary levels within this schedule, the Vice President for Academic Affairs took into consideration the cases of inequity which had been revealed in the salary analyses mentioned above. He also considered a review of faculty salaries prepared for him by the Affirmative Action Officer, a female faculty member herself and chair of the above-mentioned committee appointed by the President in 1976. Therefore, the salary schedule as implemented was designed to eliminate salary inequities based on sex. Since 1976, the Vice President for Academic Affairs annually has reviewed faculty salaries by sex for possible instances of discrimination and will continue to do so as he revises the faculty salary schedule each year. As a result of the institution's efforts over the past five years, female faculty salaries compare favorably with male, as confirmed by the findings of THEC's present salary analysis.

EAST TENNESSEE STATE UNIVERSITY

1. We have not been involved in litigation within the past five years during which time one or more court decisions have been rendered or out-of-court settlements have been rendered regarding alleged discrimination by sex and awarding salaries. Indeed, we are one of the few State Board of Regents' institutions not in litigation concerning this issue.
2. Our institution is currently not involved in litigation concerning alleged sex discrimination in awarding salaries.
3. East Tennessee State University has been investigated by an external agency (specifically, the Department of Labor). The Department of Labor representative spent several weeks on this campus interviewing women from all departments concerning alleged discrimination by sex in awarding salaries. I think that detailed comments are in order here. This occurred approximately three years ago at which time the representative from the Department of Labor interviewed people; reviewed our records thoroughly; and, in our exit interview, named three people whose salary histories should be reviewed. These people were _____, _____, _____. A copy of the reply to the Department of Labor is attached for the review by Dr. Lassiter. A few comments are in order in this concern. Two of the three people involved had received substantial increases for the previous year. The third person had received a reasonable or moderate increase and since that time has received above-average increases. The statement to us by the Department of Labor representative was that "if you do not hear from the Department within six weeks" we were to consider the case closed. That has been three years ago, and we have had no word from the Department of Labor, or any other agency about sex discrimination. Indeed, East Tennessee State University is one of only two (I think the other is Tennessee State University) institutions within the State Board of Regents control (and perhaps other public institutions in this state) which has not been charged for sex discrimination and had to pay back salaries.
4. We have had notice from the Equal Employment Opportunity Commission office in Birmingham that we have four reverse-discrimination charges from the Physical Plant Department. We submitted data to the EEOC some months ago concerning these cases, and we have had no further word about them. Specifically, the cases concern four white males claiming reverse discrimination on the basis of sex and race, stating that they were paid less than some black females.
5. Yes, the institution does conduct reviews of salaries by sex to determine if discrimination exists. The nature and frequency of the review is as follows: at least once a year (and sometimes more often) the Affirmative Action Officer and/or other personnel review the salaries by department, by College, to determine the relationship of salaries between males and females. To my knowledge and understanding from other institutions' cases for salary

discrimination on the basis of sex, the precedence has not been set to compare salaries across departmental lines. I specifically asked this question in the V.P.I. case approximately a year and a half ago. I would submit that the Tennessee Higher Education Commission has made some cross-departmental evaluations of salaries between males and females. This is very easy to do when using the cost study data because people in one department may teach in two or three departments. Cost study data, in my opinion, are not good indices for determining sex discrimination. In other words, I find it very difficult to compare history with biology and I would submit that in a court of law, I would find it difficult to compare history with English. I know that this a defensive statement; however, we have discussed this many times. I would ask this question, has there been a charge of sex discrimination in this state or in any other state whereby salaries have been compared between departments? I hit this point rather hard because in my discussion with the Department of Labor examiner who was here for our discrimination review, he and I specifically talked about comparing salaries across departmental lines and at that time he agreed that probably that was not the right thing to do.

MEMPHIS STATE UNIVERSITY

1. Yes. The Department of Labor investigated the University (1974) specifically for the purpose of determining salary differences based on sex. After a lengthy review, the University adjusted the salaries of approximately 20 female faculty members out of court, but did not admit guilt to discrimination. The Department of Labor has since sued the University (1975), for back wages in this matter and the case is pending in court at this time.

Another case was the Nicholson versus the University for sex and race discrimination. After approximately three years of litigation the case was dismissed due to the failure of the complainant to secure proper council.

2. No.
3. Yes. See question 1.
4. No.
5. No. The University does not conduct an analysis of faculty salaries specifically related to sex. It does, however, review salaries each year to determine if there is a proper relationship by rank within the various colleges and within the University. Such a review takes into account degrees, years of experience, service at the institution, promotion in rank, and other factors. The University has an organized system of evaluation for merit salary increases. There is a review for each individual (faculty member) to insure the recommended salary increase is consistent with the evaluation, without regard to sex.

MIDDLE TENNESSEE STATE UNIVERSITY

1. MTSU has not been involved in referenced litigation.
2. MTSU has had a class action suit brought by Rita Decker-Gregg. MTSU is awaiting a hearing on this suit. A copy of Decker-Gregg's complaint is attached.
3. MTSU was investigated by the U.S. Department of Labor beginning March 28, 1977, and ending with settlement June 16, 1978, in the amount of \$50,000 distributed among 35 women.
4. MTSU is not currently under investigation by any external agency.
5. MTSU has conducted an intensive review of salaries of all faculty members and has made equity adjustments for three years in order to achieve a condition that has been acknowledged by the Labor Department, the SBR staff, and the THEC staff as exhibiting no evidence of sex discrimination in salaries.

TENNESSEE STATE UNIVERSITY

1. Within the last five years we have had three cases of sex discrimination. _____ filed a case against the University of pay inequity. She has withdrawn her complaint. _____ filed suit against the university. The case was settled out-of-court with a settlement fee of \$5,000. _____ filed an EEOC complaint for pay inequity on the basis of sex. She has withdrawn her complaint.
2. There are no cases pending against the university in terms of sex discrimination.
3. To my knowledge the Department of Labor has not conducted an investigation of TSU, nor has any external agency for sex discrimination.
4. To my knowledge the university is not currently under investigation for any sex discrimination cases.
5. We have conducted a review of salaries for the last three years for sex discrimination. The review has been annual and the results were used in making salary adjustments in the spring of each of the review years. Our review of the salaries did show inequity in pay. Our actions were to provide salary increases which eradicated the inequity. At this point the process has resulted in female faculty members earning equal salaries to males, as shown by the Board staff salary review and THEC's study of salaries at TSU.

TENNESSEE TECHNOLOGICAL UNIVERSITY

1. Within the past five years, Tennessee Technological University has not been involved in litigation for which one or more court decisions have been rendered or out-of-court settlements have been rendered regarding alleged discrimination by sex in awarding salaries.
2. The University is currently involved in litigation regarding alleged discrimination by sex in awarding salaries. Charges have been filed by the United States Department of Labor in the United States District Court - Middle District of Tennessee - Southeastern Division. Twenty-eight individuals are named in the case. Depositions were taken on campus during the fall of 1975 by Department of Labor attorneys; however, no court hearings have occurred as of the present date. Litigation pertains only to back-pay (1972 and 1973); and salaries since 1973 have not been questioned by any external agency.
3. The University has not been involved in investigation by external agencies regarding alleged discrimination by sex in awarding salaries for which settlements have been rendered.
4. The institution is not currently under investigation other than as described in item 2.
5. The University regularly conducts reviews of salaries by sex to determine if discrimination exists. A review is conducted at the time an offer is extended to an individual, and the salary of each employee is reviewed annually at the time of budget preparation.

The University has been using regression and discriminant function methodology during the last two budget years to study possible sex bias in salary, promotion, and tenure administration. The salary analyses have been done for employees in all EEO classification codes. The results of these analyses have been shared with university administrators to assist them in making salary recommendations and final decisions. Careful attention has been given to the possible existence of sex or race bias. Potential problem cases are "red-flagged" for attention.

The specific approach used is best illustrated by describing the procedure for faculty studies.

The personnel record of every faculty member was reviewed and updated to produce a current, accurate, and relevant data base for reviewing salaries paid to all permanent faculty. This data base included the following for each faculty member:

1. Name and number
2. Salary (nine month, full-time equated)
3. Total experience at Tennessee Technological University
4. Years in present rank at Tennessee Technological University
5. Total years of job relevant non-TTU experience
6. College and departmental affiliation, later converted to twenty discipline clusters

7. Highest degree or educational level
8. Relevance of highest degree
9. Date highest degree was received
10. Performance evaluations for 1974, 1975, 1976, and 1977, later also converted to an average for those years
11. Percentage increases received for 1974, 1975, 1976, and 1977, later also converted to an average increase for those years
12. Sex
13. Race

To determine what factors influenced salaries, these data were subjected to a step-wise multiple regression analysis placing predictor variables (from listed above except salary) into the salary regression equation. The process was begun with those predictor variables that are considered legitimate determinants of salary and then sex and race were added. The analysis was performed using the Statistical Package for the Social Sciences. Data plots of each predictor variable, with salary, were prepared and inspected to be certain a linear model was appropriate.

The departments were coded as dummy variables and were included in the equation first in order to take into account salary differences due to differential market pressures among disciplines. Next, the remaining determinants were added one-at-a-time as follows:

Academic Rank
Educational Level
Average Performance Evaluation
Years in Present Rank
Total Local Experience
The Holding of a Doctoral Degree
Date of Highest Degree
Relevant Experience Prior to TTU Service

With these factors in the regression salary model, a multiple correlation of .94 was obtained for the 301 faculty members at the University. This means that 88% of the variance in salary was explained by the model (through application of the above factors).

The important question was whether any of the remaining 12% of salary variance was associated with sex or race. Then sex and race were added in a step-wise manner to the model that included only the above legitimate determinants of salary, the predictable variance in salary was unchanged.

In other words, beyond that associated with legitimate determinants, no variance in salary could be attributed to the sex or race status of the faculty members. Therefore, we concluded that there was no evidence of sex or race bias in salary administration for the faculty at the University.

To be sure that we were reaching a valid conclusion, several related analyses were conducted:

Rank was deleted from the salary model to see if sex might surface as a bias if rank were disallowed. Salary became less predictable but the importance of sex was not increased significantly.

The model was developed on men and predictions made for women. The sum of the residuals for women was extremely small, thus indicating essentially what was found when both sexes were used in developing the model.

A similar methodology to that used on salary was applied to rank and tenure. That is, discriminant function analyses were used to see if after the legitimate determinants of rank and tenure were applied, if sex was contributing at all to the classification of people in rank or tenure categories. We found no significant relationship between the sex variable and academic rank or tenure.

As new questions are raised or as other methods of analysis are suggested, we will continue to study objectively whether sex or other biases are influencing the administration of salary, rank, or tenure.

CHATTANOOGA STATE TECHNICAL COMMUNITY COLLEGE

1. No.
2. No.
3. No.
4. No.
5. An annual review of all salaries is a part of the evaluation process each year. Analyses are made with current faculty averages, regionally, statewide, and locally.

Chattanooga State also conducts an internal analysis of women and minorities in terms of rank, credential, experience, and salary as compared to white males. (Attachment A)

Too, we have established a set of guidelines for individual salary analysis based on four primary factors: credentials, rank, college experience, and cumulative performance. (Attachment B)

Chattanooga State Salary Analysis
of Women and Minorities in Terms of
Rank, Credentials, Experience, and Salary
as Compared to White Males

Attachment A

Rank	White Males	Average Salary	Average Experience	Female	Average Salary	Average Experience	Minorities	Average Salaries	Average Experience
Professor	2	16,562	25.5	-0-			1	16,450	26.0
Associate Professor	17	15,860	20.9	3	15,993	20.0	2	15,753	30.5
Assistant Professor	9	14,666	16.0	6	15,433	11.0	1	14,868	8.0
Instructor	20	14,555	14.5	21	13,409	8.3	4	13,680	5.8

Credentials	White Males	Average Salary	Average Experience	Female	Average Salary	Average Experience	Minorities	Average Salaries	Average Experience
Doctorate	9	16,417	19.3	-0-			-0-		
Master's	32	14,974	16.1	24	14,658	11.0	6	14,898	12.5
Bachelor's	6	14,015	20.5	3	12,667	5.0	2	14,077	22.0
Associate	1	14,093	28.0	3	10,623	7.7	-0-		

Total - 81 Faculty Members

*Salary of fiscal-year appointees has been converted to an academic-year equivalency.

*Extra compensation for administrative duties (division heads and coordinators) has been deducted from appropriate salaries.

2-16-78

Individual salary analysis requires evaluation of the salary condition of all faculty members according to a set of criteria (factors) that have some reasonable foundation in logic, applied in a consistent manner to all faculty members.

This analysis employs four primary factors: (1) credential, (2) rank, (3) college experience, and (4) cumulative performance. Points are awarded, as appropriate, for criteria under each of these factors. The design of this analysis is such that the sum of the points accumulated under each criteria, when multiplied by \$100 per point, will yield the approximate salary of the individual faculty member.

I. Credential

Points assigned to credential correspond to the value of the credential in each discipline in today's market. The value of the credential between the bachelor's and the doctorate would obviously vary. Some departments will have subdisciplines that will require grouping faculty accordingly and setting different credential values for each.

The Division Head should review transcripts and determine appropriate equivalencies in those instances in which the highest degree earned is not in the teaching field.

II. College Teaching Experience

Chattanooga State has employed the best qualified people they could find and set initial salaries commensurate with qualifications and with the going rate for such persons in the market place. Many have had significant experience prior to being employed at Chattanooga State. Some have taught in other colleges and in high schools, while some have had valuable experience in industry and business.

A. Experience as Instructor

1. At Chattanooga State

Award 1.0 point per year.

2. At other colleges

Equate years of experience (2 for 1) at other colleges to years of experience at Chattanooga State and award 1.0 point per year.

3. Related experience

Equate years of related experience (3 for 1) to years of experience at Chattanooga State and award 1.0 point per year.

B. Experience as Assistant Professor

1. At Chattanooga State

Award 2.0 points the first year. Award 1.8 points for the 2nd year; 1.6 points for the 3rd year; 1.4 points for the fourth year; 1.2 points for the 5th year; 1.0 point for the 6th and subsequent years.

C. Experience as Associate Professor

1. At Chattanooga State

Award 3.0 points for the first year. Award 2.8 points for the 2nd year; 2.6 points for the 3rd year; 2.4 points for the 4th year, etc., to a minimum of 1.0.

D. Experience as Professor

1. At Chattanooga State

Award 4.0 points for the first year. Award 3.8 points for the 2nd year; 3.6 points for the 3rd year; 3.4 points for the 4th year, etc., to a minimum of 1.0 point per year.

III. Rank

Again, a common practice among institutions of higher education over the past two decades has been to award so-called "dry promotions," promoting a person to the next highest rank with a small monetary reward. A slightly higher-than-normal salary increase was often continued for two or three years in an attempt to bring something more than prestige to the promotion, particularly if the person held the doctorate. And, again, while this practice cannot be described numerically with precision, treatment of the data in the following manner yields a reasonably accurate result:

A. Assistant Professor

Award 2.0 points for the rank of assistant professor, plus 1.0 point per year that the person held this rank with the doctorate and .5 point per year with master's, up to a maximum of 5.0 points.

B. Associate Professor

Award 3.0 points for the rank of associate professor, plus 1.0 point per year that the person held this rank with the doctorate and .5 point per year with master's, up to a maximum of 7.0 points.

C. Professor

Award 5.0 points for the rank of professor, plus 1.0 point per year that the person held this rank with the doctorate, and .5 point per year with master's, up to a maximum of 9.0 points.

IV. Cumulative Performance

Evaluation of a person's performance over the span of his professional career is essential for a complete salary analysis. It is difficult to quantify the factors that relate to performance, and whatever factors are ultimately chosen as a basis for evaluating cumulative performance must be applied similarly to all faculty within a department.

Once points have been assigned for credential, experience, and rank for each person in the department, a graph of salary versus points should be plotted for the entire faculty of the department. Examination of this graph will disclose the point range within which cumulative performance evaluation should be confined.

Ideally, when the points resulting from cumulative performance evaluation are added to the points accumulated from credential, experience, and rank, the total, multiplied by \$100 per point, would yield the salary of the individual faculty member.

Realistically, one is searching for the best fit between points awarded and a person's salary. While the best fit may be reasonably good, it cannot possibly match the ideal.

CLEVELAND STATE COMMUNITY COLLEGE

1. Our institution has not been involved in litigation for which one or more court decisions have been rendered or out-of-court settlements have been rendered regarding alleged discrimination by sex in awarding salaries.
2. Our institution is not currently involved in litigation regarding alleged discrimination by sex in awarding salaries.
3. Our institution has not been involved in investigation by external agencies such as Department of Labor, etc., regarding alleged discrimination by sex in awarding salaries for which settlements have been rendered.
4. Our institution is not currently under investigation regarding alleged discrimination by sex in awarding salaries.
5. Our institution has conducted an annual review of salaries by sex to determine if discrimination existed since the 1975-76 school year. In 1976-77 the salaries of three (3) female instructors were increased in the amounts of \$874.00, \$959.00, and \$387.00 for a total of \$2,200.00, which is the total amount of monies used to equalize salaries of female instructors over the past five years.

COLUMBIA STATE COMMUNITY COLLEGE

1. No.
2. No.
3. No.
4. No.
5. In the years since 1972, Columbia State Community College has undertaken an annual review of male and female faculty salaries to insure compliance with affirmative action objectives. This review includes an examination of mean salaries for male and female faculty members and a case-by-case comparison of salaries by sex, rank, degree, and experience. Where questionable situations have been identified in the past, the salaries of some individual female faculty members have been increased to bring them into line with those paid to their male counterparts. The last such salary adjustment made as a result of this review was in 1975; subsequent analyses have failed to reveal the existence of any salary inequities requiring corrective action.

DYERSBURG STATE COMMUNITY COLLEGE

1. Dyersburg State Community College has not been involved in any litigation or been investigated by any agency for reasons of sex discrimination.
2. Dyersburg State Community College has not been involved in any litigation or been investigated by any agency for reasons by sex discrimination.
3. Dyersburg State Community College has not been involved in any litigation or been investigated by any agency for reasons by sex discrimination.
4. Dyersburg State Community College has not been involved in any litigation or been investigated by any agency for reasons by sex discrimination.
5. All salaries are reviewed annually in light of work-related factors such as education, experience, requirements of the position, and job performance. Salaries of men and women in similar positions are compared each year in our salary recommendation process. Care is taken to ensure that equity in compensation exists between men and women.

JACKSON STATE COMMUNITY COLLEGE

1. Our institution is not involved in any litigation concerning sex discrimination in salaries.
2. Our institution is not currently involved in any litigation concerning salaries either by sex or any other type of discrimination.
3. In 1973, the representative from the local Department of Labor Office in Jackson spent approximately three (3) days on our campus performing a sex discrimination study relative to faculty salaries only. His audit covered such areas as equal pay for tenure of service, academic rank, etc. When the audit was complete, he gave Dr. Wright and myself a verbal report in which no findings were determined based on the audit. I requested that he give us a written statement to this effect; however, he stated that on spot audits that it was not the practice of the Department of Labor to give a written response if no findings were determined. As part of this audit he also checked the internal control and information flow concerning time cards and clock cards for all employees. However, this is irrelevant to the report.
4. Our institution is not currently under investigation concerning any items referred to above.
5. It has always been the practice of Jackson State Community College to review salaries as to any inequities concerning sex, race, age, and other types of disparities that may exist in the employment strata of the college. The Office of the Director of Personnel, Jackson State Community College, has a responsibility of trying to produce on-going studies that provides information to the administration at Jackson State Community College concerning these types of possible discriminations. I feel that we can safely say that Jackson State Community College's salaries are determined on the basis of the position considering such things as educational achievement, degree of difficulty of the job, etc. We do not determine salaries based on sex, race, ethnic background, religion, etc. We have not, at any time that I can remember, adjusted salaries because of a person's sex. Salary adjustments have been based on uniform criteria that would apply to any person in a particular position.

MOTLOW STATE COMMUNITY COLLEGE

1. No.

2. No.

3. No.

4. No.

5. There is an annual review of salaries of all personnel during budget preparation in the spring. Two years ago, several adjustments were made in the salaries of female faculty and staff members to achieve equity. Since that time, we have not found it necessary to make salary adjustments.

ROANE STATE COMMUNITY COLLEGE

1. No
2. No
3. No
4. No
5. An initial monitoring program of new employee salaries is conducted by this office to insure compatibility with those of individuals already on staff. In addition, the Annual Affirmative Action Report and Salary Analysis provides valid data and may suggest areas of concern. Of course, during the spring salary assignment period for each new fiscal year, this office is asked to review all proposed salary recommendations and advise the President on suspect salaries. In essence then, our analysis is on-going.

SHELBY STATE COMMUNITY COLLEGE

1. No.
2. No.
3. No.
4. No.
5. Our policy is simply to pay according to schedule. For example, if a man with five years of college teaching experience, with the doctorate, were to merit a salary of \$13,500, according to our scale, we would offer exactly the same amount to a woman with the same experience and degree credentials.

Salary variations after the first year of employment at Shelby State are likely to occur insofar as we recognize outstanding service. However, in no case would we add or subtract from salary considerations merely on the basis of sex, family status, and so forth.

I would have been quite surprised if any salary data collected in relationship to Shelby State indicated any other conclusion than non-discrimination.

VOLUNTEER STATE COMMUNITY COLLEGE

1. No.
2. No.
3. No.
4. No.
5. Volunteer State Community College annually conducts salary reviews at the time salary determinations are made for the following fiscal year. A number of variables are considered at the time, including both sex and race. This process involves review and recommendations by the Division Chairpersons, the Dean of Instruction, and the Administrative Committee prior to final actions on salaries. As a result of this process, we have been able to avoid salary discrimination by race and sex.

WALTERS STATE COMMUNITY COLLEGE

1. No.
2. No.
3. No.
4. No.
5. Walters State does conduct annual and/or periodic reviews to determine if discrimination exists. Concurrent with the 1975-76 fiscal year, Walters State initiated a salary guide for faculty to ensure that salary inequities did not exist. A copy of the current year's guide is attached. 7

UNIVERSITY OF TENNESSEE AT CHATTANOOGA

1. No..
2. No.
3. No.
4. Yes, three cases
5. The average salaries of males and females within The University of Tennessee at Chattanooga shall be compared by the Office of Institutional Research on a bi-annual academic odd-year basis. Any noticeable discrepancies will be analyzed to determine the reasons for such; if differences cannot be accounted for in terms of relative merit and/or seniority, the Affirmative Action Officer shall instigate action to correct the discrepancy. This comparison of average salaries shall be reviewed by the Chairperson of the Committee on Women and Minorities, in consultation with the EEO Officer and the Chancellor.

As a result of the above mentioned salary reviews, salaries for women at UTC were adjusted by \$11,000.00 in 1975 and \$800.00 in 1977.

UNIVERSITY OF TENNESSEE, KNOXVILLE

1. During the past five years, UTK has been the defendant in one court suit in which discrimination on the basis of sex in salary determination was alleged. Judgement was rendered in favor of UTK by the U.S. District Court, Eastern District of Tennessee.
2. UTK is not now involved in litigation in which discrimination on the basis of sex in salary determinations has been alleged.
3. There have been no investigations by external agencies of alleged discrimination on the basis of sex in salary determinations in which a settlement has been rendered.
4. In March, 1974, a complaint was filed with the OCR which alleged discrimination on the basis of sex in salary determination along with other allegations. Investigation of this matter by OCR is pending.
5. Since 1971, UTK has made an annual comparative study of salaries of male and female faculty and has systematically undertaken to eliminate possible sex-linked salary differentials.

The study was begun upon the recommendation of a "Task Force on Women" appointed by the Chancellor to evaluate the status of women on the UTK campus and to make recommendations for improvement. The study is annually reviewed by the UTK Commission for Women, a broadly representative group of faculty, staff, and students appointed annually by the Chancellor, and is distributed widely. Copies are additionally placed on reserve in the James D. Hoskins Library for scrutiny by any member of the university community.

Studies performed for 1974-75, 1975-76, 1976-77, and 1977-78 contained regression analyses in an effort to refine methods for determining whether sex was a significant factor in salary determination. In all studies, sex has not been found to be significant at the .05 level. (See attached tables).

The regression analysis in the salary study could only indicate an institutional bias. The salary study also, however, contains tables which compare salaries of males and females by college and display the factors of rank, degree, tenure, average UTK experience, and average years in rank for males and females.

The regression analysis, the comparative salary tables, and an additional document giving average salaries by rank by department, are used in the annual salary equalization process, led by the Vice Chancellor for Planning and Administration. In this process the Vice Chancellor meets with each of the other Vice Chancellors and reviews the salary of each female faculty member and staff-exempt employee. The appropriate Vice Chancellor lists all females whose salaries indicate the possibility of sex-linked determinations and requests that the appropriate Dean or Director, together with the Department Head, review the salaries and make recommendations for equity adjustments, if there are not qualitative or external factors which justify the salary level.

Equity adjustments are then made on the basis of recommendations. In some years, equity adjustments have been made within the academic year, and in others, equity adjustments have been a part of the regular budgeting process, with a separate fund used, in both cases, to make the extra adjustments.

After equity adjustments have been determined, a review of the recommended salaries for the next fiscal year of women involved in equity adjustments is made by the Office of the Vice Chancellor for Planning and Administration to ensure that the adjustments are properly accounted for.

Equity adjustments have been made for salaries of more than 100 women, in the past five years, with some women receiving a series of adjustments to bring their salaries into line.

It is possible that some isolated cases of inequity still exist among female faculty at UTK, and the annual salary equalization process will continue. UTK also has a firm commitment, announced and reiterated in the Chancellor's Newsletter, to conduct an individual review of salary for any faculty member who believes that his or her salary is based on discriminatory factors. Several faculty have requested such reviews and a few reviews have resulted in equity adjustments.

1974-75

Table 4

Partial Regression Coefficients for Academic Staff
at The University of Tennessee, Knoxville
with Salary as the Dependent Variable

Variable	Category	N	Coefficient	Standard Error	Significance
Tenure	Yes	697	\$-1,249.63	\$ 255.81	.0001
	No	711	a		
Appointment	Joint (Admin./Faculty)	43	2,423.55	527.47	.0001
	Faculty	1,365	a		
Rank	Lecturer	37	-4,206.18	634.84	.0001
	Instructor	194	-4,150.15	337.08	.0001
	Assistant Professor	407	a		
	Associate Professor	366	3,628.61	282.25	.0001
	Professor	404	8,792.05	315.16	.0001
Degree	High School Diploma	6	-49.00	1,390.63	.9719
	Baccalaureate	53	-578.28	506.86	.2541
	Masters	408	-905.29	241.92	.0002
	Professional (J.D., M.D., etc.)	35	263.75	591.36	.6557
	Doctorate	906	a		
Time	Part-time	194	1,816.63	308.79	.0001
	Full-time	1,214	a		
Sex	Female	318	-825.20	248.06	.0009
	Male	1,090	a		

Source: Office of Institutional Research, based on information from the Office of the Vice Chancellor for Academic Affairs.

Note: The salaries were equated to full-time academic-year appointments.

aReference groups for each category.

Table 9

Simple Correlations and Partial Regression Coefficients
for Faculty at The University of Tennessee, Knoxville
1976-1977

Variable	Simple correlations with salary	Partial regression coefficient	Partial standardized regression coefficient
College			
Architecture	-.02	.00	.00
Business Administration	.06	- 39.56	.00
Communications	-.03	-1924.43	-.04
Education	-.06	-2082.85	-.12
Engineering	.18	- 635.22	-.03
Home Economics	-.06	-1372.69	-.05
Law	.06	3710.73	.11
Liberal Arts - Humanities	-.21	-2940.39	-.19
Liberal Arts - Soc. Sci.	-.05	-2475.92	-.14
Liberal Arts - Nat. Sci.	.16	-1061.50	-.07
Nursing	-.10	- 497.92	-.01
Graduate	a	a	a
Rank			
Professor	.64	8630.92	.66
Associate Professor	.09	3767.83	.29
Assistant Professor	a	a	a
Instructor	-.49	-3955.32	-.23
Lecturer	-.20	-4614.64	-.15
Degree			
Doctorate	.42	1427.24	.12
Professional	-.03	-2316.12	-.07
Master's	a	a	a
Baccalaureate	-.17	- 758.66	-.02
High School Diploma	-.03	3294.13	.02
Time			
Full-time	.12	-1934.95	-.11
Part-time	a	a	a
Tenure Status			
Tenured	.38	-1184.95	-.10
NonTenured	a	a	a
UTK Experience	.44	47.60	.06
Sex			
Female	-.35	- 139.12	-.01
Male	a	a	a

Source: Office of Institutional Research based upon information provided by the Office of the Vice Chancellor for Academic Affairs.

a Reference groups for each category.

January 25, 1977

Appendix A. Regression Procedure

1975-76

STATISTICAL ANALYSIS SYSTEM

ANALYSIS OF VARIANCE TABLE, REGRESSION COEFFICIENTS, AND STATISTICS OF FIT FOR DEPENDENT VARIABLE SALARY

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F	R-SQUARE	C.V.
REGRESSION	21	14204372745.59117	676398702.17101	167.86485	0.0001	0.77405283	12.11533 8
ERROR	1029	4146277557.34319	4029424.25358				
CORRECTED TOTAL	1050	18350650302.93435					
						STD DEV	SALARY MEAN
						2007.34258511	16568.41465

SOURCE	DF	SEQUENTIAL SS	F VALUE	PROB > F	PARTIAL SS	F VALUE	PROB > F
COLL	11	1963656149.24109	44.30266	0.0001	801814987.20876	18.09000	0.0001
RANK	3	12083472156.53268	999.60287	0.0001	4504816269.03676	372.66004	0.0001
DEGREE	4	116245629.67890	7.21478	0.0001	103930266.67022	4.44821	0.0001
MAJORS	1	21145989.04349	5.24789	0.0222	22971471.55271	5.70093	0.0171
UTKEXP	1	7168064.54779	1.77893	0.1826	8608552.27004	2.13642	0.1441
SEX	1	12644756.54714	3.13811	0.0768	12644756.54714	3.13811	0.0768

WARNING: THE X'X MATRIX FOR THIS MODEL IS NOT OF FULL RANK, AND THEREFORE SOME OF THE PARTIAL SS MAY BE INCORRECT.

SOURCE	S-VALUES	T FOR H0:B=0	PROB > T	STD ERR B	STD B VALUES
INTERCEPT	22661.93895361	58.95673	0.0001	384.30257266	0.0
Architecture	-270.91630823	-0.53312	0.5941	508.17035474	-0.00568498
Business Admin.	58.90121137	0.17305	0.8626	340.37524752	0.00433234
Communications	-2026.35724001	-3.17090	0.0016	639.04882523	-0.05152136
Education	-2030.10609242	-6.35696	0.0001	327.21729443	-0.17364219
Engineering	-1045.63010410	-3.03957	0.0024	344.00068735	-0.07625446
Home Economics	-1813.06058149	-4.27362	0.0001	424.24450811	-0.08201776
Law	1944.35332573	2.46306	0.0043	679.11654040	0.08575660
L.A.-Humanities	-2341.34367108	-7.36725	0.0001	317.80421312	-0.20826318
L.A.-Soc. Sci.	-2259.68944030	-6.76058	0.0001	333.84977956	-0.16064071
L.A.-Nat. Sci.	-1715.76379599	-5.80101	0.0001	330.25029180	-0.17119054
Nursing	-771.05270586	-1.43427	0.1518	502.73070640	-0.02625563
Graduate	0.0	0.0	1.0000	0.0	0.0
Instructor	-10672.03074401	-30.14237	0.0001	354.05411552	-0.75605462
Asst. Prof.	-7036.03433593	-30.07086	0.0001	233.48180812	-0.77955008
Assoc. Prof.	-4087.37028265	-22.27902	0.0001	183.46275745	-0.45435651
Professor	0.0	0.0	1.0000	0.0	0.0
M.S. Diploma	-1234.31957760	-1.05251	0.2928	1172.73577938	-0.01575948
Baccalaureate	-1391.45640581	-2.81575	0.0049	493.46605156	-0.04871945
Masters	-930.05285319	-4.74213	0.0001	196.12542450	-0.09528544
Professional	-1193.63469186	-1.79515	0.0729	664.92256401	-0.05054105
Doctorate	0.0	0.0	1.0000	0.0	0.0
Tenure	-619.35310293	-2.38766	0.0171	175.63333601	-0.04936138
No Tenure	0.0	0.0	1.0000	0.0	0.0
White	15.84533404	1.46165	0.1441	10.84071275	0.02658019
Male	332.75103769	1.77147	0.0768	187.83896237	0.03125879
Female	0.0	0.0	1.0000	0.0	0.0

S.T.A.T.I.S.T.I.C.A.L. A.N.A.L.Y.S.I.S. S.Y.S.T.E.M.

BACKWARD ELIMINATION PROCEDURE FOR DEPENDENT VARIABLE SALARY

1975-76

P.2

NUMBER IN MODEL	R-SQUARE	VARIABLES IN MODEL
7	0.76707934	SEX COLL RANK DEGREE TENURE UTKEXP YROFRANK
THE VARIABLES IN THE ABOVE MODEL HAVE ALL BEEN DEEMED SIGNIFICANT AT THE 0.1000 SIGNIFICANCE LEVEL		

ANALYSIS OF VARIANCE TABLE, REGRESSION COEFFICIENTS, AND STATISTICS OF FIT FOR THE ABOVE MODEL

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F	R-SQUARE	C.V.
REGRESSION	7	14076277443.67525	2010896849.09647	490.23234	0.0001	0.76707934	12.22413.8
ERROR	1042	4274207052.92381	4101926.15444				
CORRECTED TOTAL	1049	18350484996.59906					

SOURCE	DF	SEQUENTIAL SS	F VALUE	PROB > F	PARTIAL SS	F VALUE	PROB > F
RANK	1	12933022962.82914	3152.91462	0.0001	6344428477.74433	1546.69455	0.0001
YROFRANK	1	262406297.18890	63.97148	0.0001	810895433.47414	197.68662	0.0001
UTKEXP	1	638301609.24286	155.61021	0.0001	438624663.91598	106.93144	0.0001
TENURE	1	113104309.53751	27.57344	0.0001	117079649.70130	28.56260	0.0001
COLL	1	70843942.04593	17.27090	0.0001	61293497.46616	14.94261	0.0003
SEX	1	44742757.98450	10.90774	0.0014	37418818.00038	8.14710	0.0047
DEGREE	1	13856073.05641	3.37794	0.0628	13056073.05641	3.37794	0.0628

SOURCE	B VALUES	T FOR H0:B=0	PROB > T	STD ERR B	STD B VALUES
MEAN	648.17071371				
RANK	4015.94534751	39.32804	0.0001	102.11454679	0.92386336
YROFRANK	284.97883235	14.06011	0.0001	20.26854550	0.34745745
UTKEXP	-162.36013455	-10.34077	0.0001	15.65517548	-0.30294362
TENURE	666.32541947	5.34253	0.0001	162.15655895	0.10154652
COLL	-76.86702924	-3.86557	0.0003	20.60939460	-0.05820332
SEX	-503.04916842	-2.85431	0.0047	174.24175629	-0.64716104
DEGREE	140.66530973	1.83792	0.0628	76.53513119	0.03179745

STEPWISE REGRESSION PROCEDURE FOR DEPENDENT VARIABLE SALARY

NUMBER IN MODEL	R-SQUARE	VARIABLES IN MODEL
1	0.70477426	RANK
2	0.71907796	RANK YROFRANK
3	0.75364167	RANK UTKEXP YROFRANK
4	0.76002543	RANK TENURE UTKEXP YROFRANK
5	0.76388603	COLL RANK TENURE UTKEXP YROFRANK
6	0.76632426	SEX COLL RANK TENURE UTKEXP YROFRANK
7	0.76707934	SEX COLL RANK DEGREE TENURE UTKEXP YROFRANK

THE VARIABLES IN THE ABOVE MODEL HAVE ALL BEEN DEEMED SIGNIFICANT AT THE 0.1000 SIGNIFICANCE LEVEL

1975-76
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Appendix C. Stepwise Regression Procedure - Maximum R² Improvement

STATISTICAL ANALYSIS SYSTEM

STEPWISE REGRESSION PROCEDURE FOR DEPENDENT VARIABLE SALARY

NUMBER IN MODEL	R-SQUARE	VARIABLES IN MODEL
1	0.70477098	RANK
2	0.71907607	RANK YROFRANK
3	0.75366024	RANK UTKEXP YROFRANK
4	0.76002752	RANK TENURE UTKEXP YROFRANK
5	0.76308006	COLL RANK TENURE UTKEXP YROFRANK
6	0.76632530	SEX COLL RANK TENURE UTKEXP YROFRANK

THE VARIABLES IN THE ABOVE MODEL HAVE ALL BEEN DEEMED SIGNIFICANT AT THE 0.1000 SIGNIFICANCE LEVEL

ANALYSIS OF VARIANCE TABLE, REGRESSION COEFFICIENTS, AND STATISTICS OF FIT FOR THE ABOVE MODEL

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB > F	R-SQUARE	C.V.
REGRESSION	6	14062547590.12033	2343761265.02139	570.62440	0.0001	0.76632530	12.23193 8
ERROR	1944	428802712.00603	4197350.92031				
CORRECTED TOTAL	1050	18350650302.93435					

SOURCE	DF	SEQUENTIAL SS	F VALUE	PROB > F	PARTIAL SS	F VALUE	PROB > F
RANK	1	12933005823.67611	3148.74012	0.0001	7510826054.31803	1828.62667	0.0001
YROFRANK	1	262518734.11115	63.91424	0.0001	429912737.05243	202.05508	0.0001
UTKEXP	1	639301074.54936	155.40426	0.0001	490279944.82262	119.36623	0.0001
TENURE	1	113173664.61274	27.55388	0.0001	115422066.10339	28.10149	0.0001
COLL	1	70707648.64046	17.21487	0.0002	60398663.97828	14.70499	0.0003
SEX	1	44840639.53051	10.92202	0.0014	44840639.53051	10.92202	0.0014

SOURCE	B VALUES	T FOR H0:B=0	PROB > T	STD ERR B	STD B VALUES
MEAN	1134.32390915				
RANK	4082.97014124	42.76244	0.0001	95.47794052	0.93927566
YROFRANK	247.54223113	14.21461	0.0001	20.73145705	0.35063920
UTKEXP	-168.44625441	-10.92549	0.0001	15.38570144	-0.31380336
TENURE	859.74221324	3.39108	0.0001	162.18234931	0.19119887
COLL	-78.94647188	-3.83471	0.0003	20.58736715	-0.05760745
SEX	-568.73094925	-3.30405	0.0014	172.08093868	-0.05342685

Table 8

Partial Regression Coefficients and t Tests for Significance of Each Variable Subcategory
Included in a Multiple Regression Analysis, 1977-1978 UTK Salary Study

Variable	Partial Regression Coefficients	t for H_0 : parameter = 0 ^a
Intercept	14045.32	46.93
Architecture	3525.73	5.32
Business Administration	2752.56	7.35
Communications	1311.38	1.65 ***
Education	427.75	1.27 ***
Engineering	1625.39	4.39
Home Economics	911.46	1.62 ***
Law	5843.58	4.81
Liberal Arts - Humanities	b	
Liberal Arts - Social Sciences	219.91	0.63 ***
Liberal Arts - Natural Sciences	1064.13	3.30
Nursing	2387.18	3.72
Graduate (Soc. Wk., Planning, etc.)	3723.80	8.50
Lecturer	-3415.08	-5.79
Instructor	-3896.17	-10.21
Assistant Professor	b	
Associate Professor	3654.48	11.88
Professor	8979.81	25.35
High School Diploma	527.53	0.16 ***
Baccalaureate Degree	-2796.50	-4.79
Master's Degree	-1760.14	-6.47
Professional Degree	-2265.04	-1.92 ***
Academic Doctorate	b	
Not Tenured	b	
Tenured	-835.47	-2.80
UTK Experience (in years)	49.13	3.00
Male	b	
Female	-296.69	-1.13 ***
Full-time	b	
Part-time	1239.87	3.63

Source: Office of Institutional Research based upon information provided by the Office of the Vice Chancellor for Academic Affairs and the University of Tennessee payroll and personnel files for the College or School of Architecture, Business Administration, Communications, Education, Engineering, Home Economics, Law, Liberal Arts (Humanities, Social Sciences, and Natural Sciences), Nursing, and the graduate programs of Library and Information Science, Planning, Social Work, and Biomedical Sciences.

*** Not significant at the .05 level.

^aThe higher the absolute value of the t score, the more statistically significant that variable subcategory is in the determination of salary.

^bReference groups for each category.

April 19, 1978

THE UNIVERSITY OF TENNESSEE AT MARTIN

1. No.
2. No.
3. No.
4. No.
5. Yes. The University of Tennessee at Martin began to seriously assess the subject of equity in salaries of women in FY 1975. As inequities were isolated, adjustments were made to individual salaries. Each year from FY 1975 to FY 1977 a salary survey was conducted comparing overall men's and women's salaries, average salaries by rank, and pairs of individuals, one male and one female, with similar attributes.

The funds for equity increases were taken from the overall raise pool before any other salary increases were determined. The funds used for this purpose were as follows:

<u>Year</u>	<u>Total</u>	<u>Administration</u>	<u>Faculty</u>
74-75	\$ 8,900	\$1,400	\$ 7,500
75-76	15,000	3,300	11,700
76-77	3,000		3,000
	<u>\$26,900</u>	<u>\$4,700</u>	<u>\$22,200</u>

The effort made in FY 1976 was particularly difficult since this was the year that the state limited the raise pool to 2.5%.

The FY 1977-78 salary survey did not indicate any identifiable inequities in women's salaries, and therefore no funds were isolated for equity increases.

The funds appropriated by the legislature for salary improvement for FY 78-79 were distributed based on a comparison of UTM salaries to other state institutions comparing degree, years of experience in higher education and discipline. Two regression lines were established for each discipline based on years of experience, one for doctorate, and one for non-doctorate.

Using the statistics produced by this study, each faculty member's predicted salary was calculated and compared to his/her actual salary. In those cases in which the actual salary was less than the "predicted" salary, the Vice Chancellor for Academic Affairs, in consultation with the appropriate dean and department chairman, studied the performance evaluation history of the individual to determine if the deviation was due to merit consideration or due to an inequity. Adjustments were made to increase the individual's salary to approximately the level where it should have been in relation to the regression line based on performance.

Although the funds were not distributed on the basis of sex, the following table shows the adjustments that were made, male vs. female.

The University of Tennessee Martin, contd.

	<u>Continuing Faculty</u>		<u>Salary Improvement Fund Distribution</u>			
	#	(%)	<u>Individuals</u>		<u>Amount</u>	(%)
			#	(%)	\$	
Total	199		74		50,500	
Female	55	(28.1)	20	(27.0)	14,050	(27.8)
Male	144	(71.9)	54	(73.0)	36,450	(72.2)

The table indicates that there was not a disproportionate number of female faculty members in a position to receive salary improvement because of an inequity.

Another effort that has assisted female faculty, in particular, is our Faculty Development Grant Program. The program supports faculty who return to study for an advanced degree by paying them a stipend of \$500 per month. The remainder of their salary is used to employ temporary replacements. Of the twenty faculty members who have taken advantage of this professional development opportunity over the past four years, ten were females. This program is serving to increase the number of female faculty members with terminal degrees which will improve their salaries and their opportunities for administrative positions as well as improve their effectiveness in the classroom.

UTM is committed to the elimination of sex discrimination in salaries. We are prepared to make adjustment as we become aware of inequities. However, we recognize that equity in salaries is a complex problem, and we want to be careful that we are correcting real inequities and not creating others.

UNIVERSITY OF TENNESSEE AT NASHVILLE

1. No.

2. No.

3. No.

4. No.

5. No.

THE UNIVERSITY OF TENNESSEE CENTER FOR THE HEALTH SCIENCES

1. No.
2. Yes, 2 cases.
3. No.
4. No.
5. For a number of years staff in my office conducted formal, annual analyses of salaries by sex, by department and by college. Only those departments containing both males and females were considered in the analyses. Some cases of salary/sex discrimination were determined. Action was taken to correct these.

More recently annual reviews by departments have been conducted by the deans of the colleges and departmental chairmen at the time salary budgets for the upcoming year were determined. If cases of salary discrimination exist, steps are taken for correction.

This statement applies to exempt personnel. For non exempt personnel, we have a job grade classification system which specifies minimum/maximum salaries by grade level regardless of sex. I am quite certain that if my office were to conduct a formal analysis that we would find salary discrimination by sex for comparable jobs and qualifications no longer exists.

METHODS USED BY THEC STAFF TO
ANALYZE FACULTY SALARY DATA

1. Multiple Regression by Institution. Variables: Salary with age, sex, total experience, degree, rank, discipline.
2. Multiple Regression by Discipline. Variables: Salary with age, sex, total experience, degree, rank.
3. Multiple Regression by Discipline. Variables: Salary with age, sex, total experience, degree.
4. Multiple Regression by Institution. Variables: Salary with age, sex, total experience, degree, year of degree, rank, discipline.
5. Multiple Regression by Discipline. Variables: Salary with age, sex, total experience, degree, year of degree, rank.
6. Multiple Regression by Discipline. Variables: Salary with age, sex, total experience, degree, year of degree.
7. Multiple Regression by Institution. Variables: Salary with age, sex, total experience, degree, year of degree, rank, discipline, tenure status, administrative title.
8. Multiple Regression by Institution. Variables: Salary with age, sex, total experience, degree, year of degree, rank, discipline, tenure status, administrative title, total experience squared.
9. Multiple Regression by Institution. Variables: Salary with age, sex, total experience, degree, year of degree, rank discipline, tenure status, administrative title, total experience squared, sex X rank.
10. AAUP Model by Discipline. Variables: Salary with age, total experience, degree, year of degree, rank.
11. AAUP Model by Discipline. Variables: Salary with age, total experience, degree, year of degree.



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MEMORANDUM

TO: Members of THEC

FROM: Wayne Brown

DATE: February 6, 1979

SUBJECT: Governing Board Staff Response to THEC Report in Response
to HR 107

Attached are comments from the State Board of Regents staff and the staff of the University of Tennessee system on the THEC Report in Response to HR 107.

GWB:BNA:gb

University of Tennessee Comments
on the
THEC Report of Findings of Faculty Salary Study
in Response to House Resolution 107

The University of Tennessee staff is in general agreement with the methodologies, conclusions, and recommendations contained in this report. Since 1972 the University has conducted studies on its campuses aimed at identifying possible sex-based salary inequities and has made appropriate salary adjustments in those instances where it appeared that such inequities might exist. In a number of instances the statistical models employed at University of Tennessee campuses have been similar to those utilized by the THEC staff in the present study. However, as noted in the body of this report, such statistical models are extremely complex instruments; they must be applied with great care, and their results can be easily misinterpreted. In particular, we believe that the following points deserve reemphasis.

1. A principal factor in establishing faculty salary levels is the relative supply of, and demand for, the services of faculty members in a given discipline, i.e., the job market in that discipline. Traditionally, women have tended to choose fields of study near the lower end of the faculty-pay spectrum. Hence, examining faculty pay patterns within groups of disciplines which may include higher paid fields heavily populated by men and lower-paid fields with larger concentrations of women may show statistical indications of sex-based salary inequity when, in fact, no such inequity exists.
2. At many institutions promotions in rank are awarded only after careful evaluation of a faculty member's performance. Faculty rank becomes, in effect, an indirect measure of faculty performance, and the present study has demonstrated that faculty rank is a major factor in determining salary levels at many Tennessee institutions of higher education. The University of Tennessee has, for many years, been committed to a formal policy of basing salary and rank increases on merit for all employees. Hence, salary analyses which do not include rank as a factor are, in our opinion, not reliable for most campuses since they fail to include the primary basis on which annual salary adjustments have been made.

The University of Tennessee is committed to a policy of salary equity for all its employees. Periodic statistical analyses of salaries will be continued, and any observed sex-related discrepancies that cannot be explained by non-discriminatory factors will be corrected.

State Board of Regents' Staff Comments
on the
THEC Report of Findings of Faculty Salary Study
in Response to House Resolution 107

In general, the SBR staff supports the methodologies, conclusions, and recommendations contained in the THEC report. The following comments are based on the salary studies conducted by the SBR staff and the instructions given to the institutions as the statistical evidence was accumulated from the THEC and SBR studies.

1. Prior to and parallel with the THEC study extensive statistical analyses were conducted of the faculty salary structures of the SBR institutions.* Additional data on faculty salaries, qualifications, and performance were collected for Middle Tennessee State University, Memphis State University, and Chattanooga State Technical Community College. In the case of these three institutions the definition of faculty was broadened to include all persons below the administrative rank of dean who held faculty rank and were engaged to any extent in teaching, research, or public service. The results of the multiple regression analyses of the expanded data bases for these three institutions support the conclusions of the THEC analysis that there is no statistical evidence of sex discrimination in the salary structures of these institutions. In fact, the coefficients for sex were not only not statistically significant, but were positive for both MTSU and MSU, and did not explain enough

* The results of the SBR studies may be inspected on request.

of the variations in salary to enter the calculations for CSTCC.

2. When the results of the first THEC and SBR analyses were distributed, all institutions were instructed to: (1) completely review all faculty salaries to insure that no discrimination existed, and (2) make such adjustments as were necessary to correct any discrimination discovered in the review process. This review was requested even though the statistical evidence in most cases did not indicate the existence of discrimination, and attention was directed to faculty salaries not included in the THEC data. Some salary adjustments were made as a result of these reviews.

3. All similar studies which have been reported throughout the United States were studied for methodologies and comparability of results. All significant studies reviewed for other institutions and regions indicated statistically significant sex discrimination. Although these studies were generally based on salary data from earlier years, the results of the THEC report and the SBR staff analyses are in stark contrast in indicating no statistically significant difference between men's and women's salaries at nearly all of the Tennessee institutions.

4. Extensive analyses of the rank structure and promotions of SBR universities were undertaken to evaluate the contention by some that rank is awarded on a discriminatory basis, and thus that rank is an inappropriate "explanatory" variable in multiple regression analysis.

The THEC report correctly points to the relatively low percentage of women faculty members who hold the doctorate as an important factor in the comparative rank structures of men and women faculty. In addition, women have substantially fewer years collegiate experience on the average, and those with the terminal degree average holding the degree for fewer years than for men. There was no discriminatory pattern evident in the rank structure of SBR universities when degree, years degree held, and years of collegiate experience are taken into account. Furthermore, when these same factors are considered there does not appear to be any discriminatory pattern in the promotions granted by SBR institutions within the last four years.

5. SBR staff studies lead to the conclusion that inclusion of additional variables from those used in the THEC multiple regression model is necessary to provide the best explanation of faculty salaries. Specifically, holding an administrative title, years the present rank has been held, years of association with the institution, years of collegiate experience with other institutions, and tenure status were all important additional explanatory variables for SBR institutions. Other applications also indicate that variables relating to evaluation and scholarly productivity should be included to provide the "best" statistical explanation. The relationship between these variables and rank was demonstrated with the SBR data base for MTSU. When rank was dropped as an explanatory variable, the weight of the explanation of salaries was

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transferred to the evaluation and productivity variables, as well as the experience factors.

6. Caution must be exercised in interpreting the statistical results for small institutions or discipline areas. In some cases it may be necessary to drop some salaries before the statistical measures are meaningful. For example, in the Health Professions (excluding medicine, dentistry, etc.) it is necessary to drop out the salaries of physicians and dentists teaching in nursing, dental hygiene, and other undergraduate programs. Furthermore, the discipline categories must be defined so as to be as homogeneous as is possible. For example, inclusion of business education with business administration rather than education can give rise to a "statistically significant" coefficient for sex because: (1) salaries in business education (or office administration) are below those of business administration; and (2) a high proportion of the faculty in business education is comprised of women. The SBR analyses employed somewhat different discipline structures than those in the THEC report to obtain greater homogeneity within discipline categories. In fact, some evidence developed indicated that a combination of administrative and discipline structures was probably the most desirable.

7. Beginning with the 1979-80 operating budgets, the faculty salary budgets of each SBR institution will be evaluated for evidences of discrimination using the multiple regression model developed in the SBR studies. Promotion recommendations will continue to be monitored to

insure that discrimination does not develop in this significant determinant
of salary.